COMMUNITY HAZARD ASSESSMENT
A NUTS AND BOLTS APPROACH

EXECUTIVE ANALYSIS OF FIRE SERVICE
OPERATIONS IN EMERGENCY MANAGEMENT

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ABSTRACT

Many years ago our community realized a need for an emergency operations plan. Using a generic model, a plan was developed for use in large-scale emergencies. With the increase of incidents and related media coverage, community leaders have become more aware of the needs for emergency planning. The past dependence on the generic plan has resulted in the lack of a formal community assessment of the hazards faced. It became the purpose of this research to develop the framework from which an analysis could be performed and to provide pertinent information necessary to initiate the assessment process.

Analysis of the problem included the following questions:

1. What should the assessment contain?
2. Is there a standard format used?
3. What are the hazards faced by the community?
4. Is the community capable of managing these hazards?

Historical research provided information on past incidents that was included as a part of the hazard identification. Another component recommended by the literature was the assessment of vulnerability. Elements of this component were identified as danger and destruction, environmental concerns, economic, political, and social aspects. Each of these elements

addressed various aspects of the community. Once the hazards were identified and the vulnerabilities assessed, the capability of the community was examined. The capability assessment not only addressed the hazard-specific requirements but the overall community as well. The final step was to put the information into a useable format. Various reports were examined and from this review a format was developed for use by our community.

It was realized this process requires the input from various segments of the community. Therefore, the recommendation was to create a planning committee for the community that consists of business, government, emergency services, and citizens. It was also recommended this committee be charged with continuing the assessment process; assist local government with mitigation and preparedness efforts; and to ensure the process of planning is continued.

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INTRODUCTION

A number of years ago, our community realized the need for and developed an emergency operations plan (EOP) for use during a large-scale emergency. This plan is based on guidelines provided by the Federal Emergency Management Agency (FEMA) and a generic model written by local emergency planners. The generic model utilized was not specific to any one community or hazard. However, it did provide some direction to the basic needs of a plan.

Most recently, large-scale incidents are increasing and receiving a considerable amount of media coverage. Community leaders are more cognizant of these incidents and the needs for emergency planning. This has also provoked an increased interest and review of the emergency operations plan and preparedness. Our past reliance on the generic model has resulted in the lack of a formal comprehensive assessment of the hazards faced by our community.

The purpose of this research is to develop the framework for a community assessment for utilization as a basis for current and future emergency planning. To provide pertinent information necessary to initiate the process of assessing the community and the hazards it faces.

Analysis of the problem included the following questions:

1. What should the assessment contain?
2. Is there a standard format used?
3. What are the hazards faced by the community?
4. Is the community capable of managing these hazards?

Several research methods were employed during the course of this project. Utilizing historical and descriptive research, data from past incidents were examined to identify the potential impact on our community. Relevant literature on disaster issues was examined to provide insight to the assessment process. Action research concluded the process with the development of a community assessment of the hazards faced by our community.

BACKGROUND AND SIGNIFICANCE

The Loveland-Symmes Fire Department (LSFD) has provided fire and emergency medical services to the community for over 100 years. During this time the community has relied on the department to be its safety net. The public we serve are expecting more from their fire service and to handle whatever emergency may arise. Jenaway (1995) states “We are expected to solve the problem and mitigate the hazard . . . because someone has perceived

a hazard and they believe you can fix it" (p. 54). As a result, the fire service has worked themselves into being a jack of all trades, a group of can do people.

> Fire departments practicing only the art of fire suppression are now rare. In their place are departments performing an ever-widening array of services, including emergency medical response and transport; light, heavy, and specialty rescue; specialized extrication; and hazardous materials response. In fact, these make up the bulk of many departments' responses, while the traditional service, fire suppression, has slipped to a lower percentage of total responses (Hawkins, Jr. and McClees, 1988, p. 321).

This concept is evident with the responses of the LSFD as our calls to non-fire related emergencies in 1997 were approximately 87% of the total volume.

The design of this research is to create the framework for a community assessment and lay the foundation for future planning efforts. The fire service has for many years performed risk assessments of the community for the threat of fire. The Executive Analysis of Fire Service Operations in Emergency Management (EAFSOEM) student manual indicates "The community risk assessment process provides a valuable source of information for emergency management program planning, priority setting, and strategy deployment" (National Fire Academy, 1998, p. 4-4).

Our community has a critical need for a comprehensive analysis as the basis for the current emergency operations plan is a generic model. While this generic model considers various hazards and provides pertinent information, it does not address the specific hazards of our community. Further, the plan does not address the vulnerabilities and capabilities of this community that will impact the recovery from such events. One such event occurred in April 1998 as our community experienced a significant flood for the first time in nearly twenty years. While the effects on the community lasted but two days, the event exacerbated the need for more planning and analysis. The community must also realize they could very well be on their own during the first few hours or days of an incident before additional assistance or resources are available. "The information derived from the analysis ensures that current activities not only will suit the demands of the present, but will also contribute to the achievement of long term goals" (National Fire Academy [NFA], 1998, p. 4-4). The emergency plan should address these issues and prepare the community for these types of events.

The fire department must also be ready to take the lead on the planning issue. "Although the public may be willing to accept or turn their back on risks and hazards to their community, few will accept and excuse poor and improper mitigation efforts by the fire department" (Harper, 1995, p. 3).

LITERATURE REVIEW

The development of a community analysis is a part of a larger concept referred to as comprehensive emergency management (CEM). CEM is "a management-by-objective system developed by FEMA for the purpose of planning and coordinating the actions of the many agencies whose response is required in the event of an emergency" (Kuhr, 1995, p. 55). This system consists ". . . of four phases-mitigation, preparedness, response and recovery" (Kuhr, 1995, p. 55). Through these phases various components combine to ensure the community is prepared to manage a large-scale incident or disaster. Mitigation is defined as activities ". . . that reduce the probability or limit the effects of a disaster" (Hawkins, Jr. and McClees, 1988, p. 324). It is in the mitigation phase that an analysis is completed to address the hazards faced by a community. "This can be accomplished through an assessment of local risks" (Kuhr, 1995, p. 55).

The concept of a community analysis is to provide an overall snapshot of the community and provide information for planning. Spillman (1996) states "A community analysis is a systematic identification and analysis of all hazards (hazards are potential disasters, emergencies, or terrorist acts) that could occur in the community" (p. 16). He further identifies capability assessments as a part of the total analysis. In another view, LaValla, Stoffel, Kartez, Rudolf,

and Murphy (1989) define a hazard analysis as “a systematic investigation of potential disasters by analyzing history, vulnerability, and probability” (p. 20).

According to the National Fire Protection Association (NFiPA), risk assessment is “an assessment of the likelihood, vulnerability, and magnitude of incidents that could result from exposure to hazards” (1995, p. 1600-5). In addition, the National Fire Academy (1998) also identifies “. . . exposure potential, effect on the community, and community perceptions concerning the risks that the community faces” (p. 4-4) as parts of risk assessment. Although risk assessment has been a part of the fire service for many years, more emphasis is now being placed in areas other that the fire threat. The concern for risk assessments and its counterparts are not limited to the American fire service. In the United Kingdom we note that “. . . currently great emphasis is being placed upon risk assessment . . .” (Davis, 1997, p. 12). Risk assessment is, in large part, the basis for future planning and preparation of communities to handle large-scale incidents and disasters.

Regardless of the terminology, an analysis of the community is necessary to provide the background information for planning and any future modifications. The four phases of emergency management and the definition of risk assessment identified the need for a community analysis to begin the process. The literature provided several views of the types of information needed to create that analysis.

Hazard Identification

Identification of the hazards is the first step towards completion of an analysis. A "hazard identification is a structured approach for determining hazards that pose a significant threat to local jurisdictions" (Kramer and Bahme, 1992, p. 19). In a recent publication from FEMA, there are four criteria identified to evaluate the magnitude of each potential hazard. These include "the likelihood of an event occurring; the impact on local population and property; and the extent of coverage of the hazard in the local Emergency Operations Plan (EOP)" (FEMA, 1995, p. 3-1). Each criterion is assigned a numeric value from zero to three, with three being the most significant. The use of the numeric system permits the user not only to identify the hazards most likely to occur but also to prioritize them for planning purposes. "It's nothing more than a system of triage: sort the wounded (the threats) and treat them (plan for them) in priority fashion" (Kuhr, 1995, p. 55).

The completion of this identification exercise relies on the experience of the evaluator as well as historical information. In their 1998 report, the Ohio Emergency Management Agency provided historical information for our area. In this assessment, hazards of all types were identified with the number of occurrences provided by county. While this information was not specific the our community, it did provide some basis for continuing the local assessment

process. Local experience also plays a part in this process as the state report did not include any information on the severe thunderstorm activity our area experiences. However, our local experience dictates that we plan for these events as they are a frequent occurrence in the community.

Compound Threats

While evaluating the events that could occur within a community, the evaluator must also consider the cascade effect. "Most triggering events lead to other events, such as an earthquake leading to building collapse, fire, and haz mat release" (NFA, 1998, p. 4-19). The analysis of the primary event must include these compound threats to ensure that proper planning for these events occur. Lessons learned from past events supports the need for further evaluation and planning. In 1990 a tornado struck Will County, Illinois; one of the thirty-nine lessons learned included "Extensive damage to emergency vehicle tires should be expected following a tornado" (USFA, 1992, p. 17). This lesson was a result of ". . . the wide scattering of debris across many streets and roadways, [and] many emergency units were limited in response times because of flat tires" (USFA, 1992, p. 8). While this tertiary event seems minor in nature it not only cost that community $125,000.00 in repairs, but also reduced the effectiveness of the response phase.

Vulnerability Analysis

Following the identification of hazards and tertiary effects, the next assessment is the vulnerability of the community. According to LaValla et al. (1989) vulnerability is "The degree to which people, property, the environment, or social and economic activity are susceptible to injury, loss of life, damage, or disruption" (p. 21). It is an assessment structured to identify ". . . what may be exposed or at risk through evaluation of five factors that affect the community" (NFA, 1998, p. 4-23). Just like the hazard identification, there are several areas examined for each hazard. According to the National Fire Academy (1998) these five factors include ". . . danger/destruction; economic; environmental; social; and political" (p. 4-23).

The National Fire Academy addresses the vulnerability of life and property damage in the danger and destruction category. Additional considerations are infrastructure components such as power and communications. Considerations of the economic element include the financial ability of the local government, the amount of losses incurred, and the overall economic impact on the community. The duration of the response and recovery phases also have an impact on this factor. Incorporated in the environmental factor are the basic needs of the community and its residents such as water and food supplies. Additional considerations are given to wildlife and plants and the amount of time needed to recover. Social aspects

include the safety issues of the emergency personnel, their families, and the evacuees. The final factor considered is the political aspects. This factor identifies the level of government involved with the planning, response, and recovery issues. The magnitude of the incident will dictate the level of government that is handling this aspect.

Each of these elements considers various areas of the community and each has a numeric value assigned in the evaluation. Similar to the hazard identification component, the numeric values range from zero to three with three being the most significant. The use of a numeric value assists the evaluator with prioritizing the hazard and its associated vulnerability rating.

For planning purposes, the use of the assessment outlined in the EAFSOEM student manual provides a framework from which to work. This system provides a checklist style analysis and yet permits the user to address specific concerns.

Capability Assessment

This component of the community analysis identifies the capabilities of the community to respond to and recover from a large-scale incident. NFiPA 1600 (1995) states "A resource needs and availability assessment for each credible disaster scenario should be conducted" (p. 1600-6). Armed with the knowledge gained on the hazards faced and the vulnerability of the

community, this section of the analysis becomes easier to assess. However, "Simply having the ability to respond to a disaster does not necessarily mean that the system is ready and capable. A fine line exists between ability and capability" (Kuhr, 1995, p. 63). The FEMA CPG 1-35 document recognizes this difference and addresses specific issues for assessing the capabilities of a community. While it is important to know how many dump trucks are available, it is equally important to know how the incident will be managed by the administration. It would then seem appropriate to have two assessments in this section; one for the overall community as suggested by FEMA and one that is hazard specific as suggested by the NFiPA.

The FEMA CPG 1-35 guidelines offer six groups to consider for capability assessment. They include planning; logistics; training and education; exercise; operations; and administration. Each of these areas addresses various aspects of the community in relation to the overall emergency operations plan. Through a series of questions, the evaluator can ". . . address a broad scope of emergency management functions and [that] are designed to provide an indication of the jurisdiction's ability to respond to any of the hazards that could seriously affect the community" (FEMA, 1995, p. 5-1).

In contrast to the FEMA guidelines, the NFiPA suggests that each hazard be appropriately assessed. The community should obviously be prepared to handle a specific hazard that has been identified as most likely to occur. This

would seem to make sense as our community does not have a volcano but we do have tornadoes. The guidelines outlined in the NFiPA 1600 (1995) document suggest this section is an assessment of physical items and ". . . should include personnel, equipment, facilities, and materials" (p. 1600-6). We must also realize that each hazard has its own set of problems that must be dealt with. Response to and recovery from tornadoes will be significantly different from floods and the physical resources needed to address these hazards will also be different. In this sense, a hazard-specific capability assessment is appropriate to include in the community analysis.

The use of after-action reports will also assist in both types of capability assessment. These reports follow up any major incident and provide valuable lessons learned. In many instances, the fire service can utilize this information to correct problems before they actually occur. A review of the 1998 tornado after-action report from Pittsburgh, Pennsylvania identified eleven lessons learned. It called for the provision of ". . . cell phones for all on-duty chief officers . . . [and to] develop effective and efficient Bureau-wide recall system[s]" (Dickinson, 1998, p. 11-12). These lessons identify both physical resources and planning issues that were learned from the incident. The use of these reports in other communities will reduce the vulnerable aspects as well as strengthen the capability of our community.

Planning Scenarios

Another component that supports the capability assessment involves the creation of a planning scenario. By planning for the worst case scenario, it ". . . will cause planners to think big, and it ensures that adequate backup resources are considered if the primary resources are unavailable" (NFA, 1998, p. 6-5). Harper (1995) concurs, "It is understood that by writing a disaster plan to the worst case scenario, a partial response can be used for lesser problems" (p. 10). The inclusion of a planning scenario in our community analysis is designed to support the findings of the analysis and act as a catalyst for future planning.

Format

The format used for the assessment is a significant factor in the usability of the document. According to Harper (1995) "It is possible to produce an extremely complicated assessment and plan of little value when disaster strikes" (p. 16). In his discussion of wildland events, he points out the plans developed were seldom used due to their complexity. While the complexity issue is a concern it can cause another obstacle. "Deciding the format of a report is always a stumbling block. Many of us agonize over and over in trying to decide the format to use" (LaValla et al., 1989, p. 24). The report must not be complex and yet provide the information necessary for the end user. The

utilization of both documents should assist the evaluator to prepare a useful assessment and handle the formatting issue.

Fire Department

Some authors identified the capabilities of the fire department as an area to be examined. Kuhr (1995) poses an interesting question, "How ready is your public safety or emergency agency to respond to a major disaster in your community? (p.54). There are two issues of concern, first is the physical capabilities of the department while second addresses planning issues.

The physical capability of the fire department is an issue that directly affects the hazard-specific capability of the community. Jenaway (1995) states ". . . who do people call first? The fire service" (p.54). Being the first agency to respond, our physical capabilities will have a direct impact on the recovery of the community. To address the capabilities of the fire department in the hazard-specific assessment appears to be appropriate.

Planning issues involve more than apparatus and personnel. It is possible for the fire department to be as vulnerable as the rest of the community. According to Kuhr (1995) a "Vulnerability analysis is an assessment of the impact given hazards may have not only on your community, but on your emergency response system as well" (p. 55). It is also possible for the fire department to be part of the problem. The realization of

our own vulnerability dictates that consideration is given to these planning issues. As the overall community capability assessment from FEMA revolves around these planning issues, it seems appropriate to utilize this resource.

Summary

As a part of the mitigation phase, the community analysis forms the foundation for future planning. The literature identified several components for inclusion into the analysis. Of those identified, hazard identification, vulnerability assessment, and capability assessment were the most prominent. However, tertiary events and planning scenarios were also identified as necessary components.

Typically, the focus is on the hazard itself, however, the literature also identified the need to assess the fire department as well as the community as a whole. Assessing the fire department as a separate entity is essential to insure the response phase is not only able but also capable of responding. The community assessment identifies areas that are not specific to any one hazard.

The format for the analysis can take any form, however, for many communities this can be and is a stumbling block. The literature review did not really reveal a single source for all needs. We learned “there is no right way to go about conducting a risk assessment” (Harper, 1995, p. 9). With this

in mind, the purpose of this research was to develop the framework for a community analysis for utilization in our community.

PROCEDURES

The final product of this project was to produce a community analysis to provide a foundation for future planning efforts. Various concepts presented in the literature provided the tools to create such a document.

The literature included materials from the Hamilton County Regional Library, the National Fire Academy Learning Resource Center, materials in the author's possession, and materials from local government. The information provided definitions, concepts, recommended formats, and questionnaires to develop a community analysis.

The literature review revealed two concepts that requires the user to make choices. The first choice was the content of the analysis while the second dealt with the format of the report. These choices are necessary as ". . . there is no single process that fits every community and every potential hazard . . ." (NFA, 1998, p. 4-3). The needs of the community, experience of the evaluators, and the availability of historical information dictate the content of the analysis. Considering the literature, the analysis for our community includes a hazard identification, compound threats, vulnerability assessment,

capability assessment, planning scenarios, and maps outlining the hazard area where appropriate.

The first task was the hazard identification using a list (appendix A) provided by FEMA. This listing also included numerical ratings for the likelihood and the impact of the hazard. This information was established using historical data from the Ohio Emergency Management Agency and local experience. The numerical rating system assists the evaluator with identifying and prioritizing hazards of the community. Following the identification of the hazard, the next step is to assess the vulnerability of the community.

Utilizing the model from the National Fire Academy, the vulnerability assessment of the community provides the next step. This assessment also uses a numeric rating system for the various topics that include economic, social, political, and environmental issues. With each of these topics there are several questions that address these issues. As an example the environmental assessment includes drinking water as well as wilderness issues. Each hazard is provided a numeric rating for vulnerability as it was in the hazard identification section.

Assessing the capability of a community required two different categories: the community as a whole and hazard-specific. Even though each category addresses different issues, there is a certain amount of interrelation. Assessment of the overall community addresses issues such as planning,

logistics, and governmental services. The FEMA CPG 1-35 document outlines these issues. The hazard specific issues may be part of the overall community, however, each hazard has its own set of problems. NFiPA 1600, Recommended Practice for Disaster Management, addresses the issues of hazard-specific capabilities.

Action research concluded the process with the development of the community analysis framework. The present plan is currently in the process of review and this analysis will assist in the identification of needs, capabilities, and vulnerabilities.

Assumptions and Limitations

This community analysis is the work of one individual. The author would expect to have additional comments about the analysis and changes would be expected.

Some authors suggested the fire department should develop their own internal plan, however, it is beyond the scope of this project. Its identification in the literature review was intended to provoke the need for further planning.

Appendix A contains the end product of this research and is the form to be submitted to the fire department administration. Therefore, all components and formats are contained in one appendix.

RESULTS

Mitigation, by definition, suggests the community address planning issues prior to a large-scale emergency. From the standpoint of planning, the need for a community analysis is necessary to address the issues the community will face. In order to plan for these events, the community must understand the hazards faced and the likely results. The development of a framework to identify and assess the hazards faced was the purpose of this research. The research provided the information necessary to complete the framework and create a basis for future planning efforts. However, the process developed in this research must be continued. "Your hazard analysis report should be looked upon as a living document. It will never be 'complete' or 'final'. There will always be additional information you would like to research and put in the report" (LaValla et al., 1989, p. 28).

Research Questions

1. What should the assessment contain?

There are many references as to what should be in an assessment, however, there was no one source or document that would be considered as a standard for the analysis. The literature did reveal a common thread of components to utilize in the analysis. Hazard identification, vulnerability

assessment, and capability assessment were identified as appropriate components. Ultimately each community is left to themselves to decide what information should be in the assessment.

The hazard identification process from FEMA was very useful and referenced in most of the literature as the document or process to use. Considering the literature and the overall use of the process, it very well could be considered a standard document for this component.

Several authors identified vulnerability as a necessary part of the analysis. However, the National Fire Academy provided the most significant information for this component. According to the National Fire Academy, there are five factors to consider during the assessment of vulnerability. The use of these factors provided a uniform approach to an otherwise difficult assessment.

The capabilities of the community are also considered as a part of the overall analysis. However, this section is actually two different aspects of the community including general and hazard-specific capabilities. General capabilities address the ability of the local government to continue operations during times of disaster or large-scale incidents. It also addresses the abilities of the community to effectively manage the incident. Hazard-specific capabilities obviously address the specific hazard, however, more on a scale of what special resources may be required.

Other sections of the assessment came from various documents and references. In the end, the local jurisdiction must decide what their assessment should contain. For the purpose of this research, our community will use the assessment as outlined in Appendix A. Major sections include hazard identification, vulnerability, compound threats, capabilities, and planning scenarios.

2. Is there a standard format?

Just as there was no standard established for the contents, there is no standard established for the format. In fact, the literature identified the formatting of an analysis is typically a stumbling block. However, several authors provided examples and suggestions on the formatting of the analysis. LaValla et al. provided a considerable amount of information on the formatting while Harper provided examples in his research. The format adopted for use by our community is in Appendix A.

3. What are the hazards faced by the community?

Each community is subject to virtually every possible hazard, however, some more than others. For our community the identification process permitted us to identify those hazards most likely to affect the community. The process also permits us to prioritize these hazards for planning purposes. The

top four hazards for our community included floods, tornadoes, severe winter weather, and severe thunderstorms. The rest of the hazards faced by our community is in Appendix A and the hazard identification section listed there.

4. Is the community capable of managing these hazards?

The literature identified two different sections of capability to be addressed. These included the overall community and hazard-specific. Each area is subject to various questions and comments on capability. The FEMA document was very useful in the overall community capability assessment. The capabilities of the overall community can and will have an effect on how that community responds to and recovers from a specific incident. While it is not to be completed for each hazard it does have an impact. This assessment is in Appendix A.

The hazard specific capabilities fall in with each hazard and are addressed with each hazard analysis. The capability of the community to handle a specific incident needs to be addressed individually. Obviously an overall community capabilities' assessment does not include the use of boats, but specifically flooding will.

DISCUSSION

The literature available on the subject of disaster planning was as plentiful as the concepts and ideals. The variety of concepts presented in the literature provided challenges to this research. However, throughout the process at least two themes were entrenched in the literature. First, that some sort of planning should occur; and second that it must start with a hazard analysis. The purpose of this project was create a framework for use by the community for future planning. The EAFSOEM student manual indicates that ". . . a carefully constructed community risk assessment is generally considered a critical first step in any proactive hazard management plan" (NFA, 1998, p. 4-3). The literature was full of concepts and ideals on what should be in the analysis but had very little on the nuts and bolts of how to actually write one. In fact, Harper (1995) states "There is no right way to go about conducting a risk assessment" (p. 9).

The literature suggested hazard identification, vulnerability assessment, and capability assessment as the content for the analysis. In addition, some authors included planning scenarios and compound threats as components to be addressed. It was widely accepted in the literature to utilize the hazard identification component produced by FEMA. This process provided the

cornerstone of the analysis by identifying potential hazards faced by our community.

The component of vulnerability had a wide variety of concepts that provided a challenge to this research. That challenge was not the component itself, but the content of the component. A part of this challenge was the inclusion of these elements in the hazard identification. The FEMA model lends itself to this inclusion; however, this could be a misnomer. This model includes ". . . impact on the local population and property. . ." (FEMA, 1995, p. 3-1) as specific areas to assess. In contrast, the National Fire Academy (1998) concludes "Vulnerability identifies what may be exposed or at risk through evaluation of five factors that affect the community" (p. 4-23). As noted in the literature review, those factors include ". . . danger/destruction; economic; environmental; social; and political" (NFA, 1998, p. 4-23). In another view, NFiPA 1600, Recommended Practice for Disaster Management, identified factors similar to the National Fire Academy; however, are included under the hazard identification heading. The challenge for the community is addressing all the potential vulnerabilities they face. Evaluators must use caution and not be lulled into believing the assessment of vulnerabilities is complete using the FEMA hazard identification model. As suggested by the National Fire Academy and the NFiPA, there are additional elements to assess.

The next challenge was the capability component. This challenge is more of a realization than confusion over content. It actually required two sub-sections; the community overall and hazard-specific capabilities. This is because each sub-section identifies different elements to ensure the total capability of the community.

The most readily identifiable component was the hazard-specific capabilities. This assessment addresses the physical resources needed to handle the incident. As identified in the literature, the NFiPA (1995) suggests the ". . . assessment should include personnel, equipment, facilities, and materials" (p. 1600-6). Fire departments have performed this type of assessment for many years for the fire threat. This is evident as Strickland (1987) states "To measure capabilities, you need to consider the availability of apparatus, equipment, and personnel" (p. 35). The capability requirements for each hazard are different and this type of assessment addresses those concerns.

The overall community assessment provides a broad overview of its capabilities. The FEMA document *Capability and Hazard Identification Program* provided a questionnaire to address these concerns. It ". . . call[s] for a subjective evaluation of where the jurisdiction stands with regard to its existing emergency management capabilities" (FEMA, 1995, p. 5-1). Capabilities are not only the physical resources but also the management of

the incident. For instance, some of the questions in the FEMA (1995) capability assessment addresses the legal authority to "Order an area evacuated" or "redirect funds for emergency use" (p. 5-2). This type of assessment addresses the management functions as well as the support functions required to manage that incident. Capabilities are more than physical resources and the evaluator must be prudent in addressing the entire component.

The lack of a standardized format created the third challenge. In recognizing this challenge LaValla et al. (1989) state "Deciding the format of a report is always a stumbling block" (p.24). There were a number of articles reviewed concerning the risk assessment of the fire threat. Each author presented their thoughts using a form or specified process to complete for each hazard. There was no such document for hazards outside the fire threat. In fact, there were a limited number of documents that even mentioned the format an analysis should take. Two authors provided suggestive formats for the assessment. In his work in 1995, Harper included sample reports that provided some insight as to the format while LaValla et al. provided a suggested format to use. Collectively these two formats provided sufficient information for the development of a format for our community analysis.

As noted previously, for many years the fire service has performed risk assessments for the fire threat. The material for this assessment has many

common threads such as fire flows, type of building construction, square footage, and the contents of the building. While performing an assessment for that building, the fire service has a definitive set of parameters to follow with a quantifiable end result. While there may be different systems, formats, and terminology to use for this task, there are common denominators. The lack of common threads in the assessment of risks leads to the next challenge.

One of the most significant impacts to this research project was the lack of common denominators within the identified components. For example, several authors identified the need for a vulnerability assessment. However, there were no two authors that totally agreed on the content of the component. The National Fire Academy identified five factors for consideration while FEMA only addressed population and property. The fire service has grown accustomed to using a systematic approach for evaluating the fire threat and one that has a quantifiable result. The lack of a common denominator is one obstacle to overcome in order to complete the community assessment. Interestingly, the Ohio Emergency Management Agency (1998) states ". . . the risk assessment process is more of an art than a science since no two approaches seem to be the same" (p. i). An additional obstacle to overcome may very well be the lack of a quantifiable result.

The fire service will be the primary response agency when the next disaster strikes. We must be prepared to respond and handle the problem as

our role has changed over the years from fire suppression to a jack of all trades. However, we must also realize that we cannot do this alone. We need the input from the community to address these issues.

The lead for disaster planning and assessment of hazards is clearly at the fire services' doorstep. "Given the importance of emergency management, the fire service executive has little choice but to become vigorously involved in its improvement" (Hawkins, Jr. and McClees, 1988, p. 345). The final product of this research provides that critical first step in the process. The research identified several issues for the community and the fire department. Even though planning issues specific to the fire department are beyond the scope of this project, it is a significant component that requires further development. The next step towards proper management of the next disaster is in the hands of the fire service. "The situation is clear: Every day that passes brings the community one day closer to the next disaster" (Hawkins, Jr. and McClees, 1988, p. 345).

RECOMMENDATIONS

The end result of this research was to provide the framework of a community analysis for use in planning. This author realizes there is much more to be accomplished and that one person's thoughts are not enough. Not only do other government agencies need to be involved but the private sector as well. "We can accomplish more together as a group than as individuals" (Witt, 1998, p. 83). With this in mind, a planning committee should be established to continue the efforts of disaster preparedness.

This committee should be charged with several tasks. First, the continued efforts of an assessment of risks and analysis of the community. Second, to assist local government with mitigation and preparedness efforts for disasters. Finally, to ensure the process of planning is continued.

Members of this committee should be from local government, business, emergency services, and private citizens. One of the tenets of the Project Impact involves mitigation. Accordingly, mitigation ". . . is best addressed through a local partnership involving government, business and private citizens" (Witt, 1998, p. 83).

It has been established the fire department will, in all likelihood, be the primary response agency for virtually any disaster. As well, it has been

established that planning issues for the department was beyond the scope of this research. However, these issues were addressed in the literature review to provide the impetus to establish the process. Therefore, it is recommended the LSFD establish a committee to review these planning issues and provide recommendations to the LSFD administration for further action.

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